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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,505	07/17/2003	Toshiaki Yoshihara	1100.68143	1976

7590 04/20/2005

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EXAMINER

DUONG, THOI V

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,505

Applicant(s)

YOSHIHARA ET AL.

Examiner

Thoi V. Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 14 and 15 ~~is/are~~ pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 14 and 15 ~~is/are~~ rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species IV (claims 14 and 15 and generic claims 1-7) in the reply filed on December 27, 2004 is acknowledged.

Accordingly, claims 8-13 were cancelled and claims 1-7, 14 and 15 are currently pending in this application.

Inventorship

2. In view of the papers filed January 24, 2005, the inventorship in this nonprovisional application has been changed by the deletion of Tetsuya Makino and Keiichi Betsui.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-275685 (JP'685) in view of Taniguchi et al. (Taniguchi, USPN 5,746,939).

Re claim 1, as shown in Fig. 1, JP'685 discloses a liquid crystal display device 70 (as well as a manufacturing method of the same) comprising two substrates 81a and 81b sandwiching a liquid crystal 85 having spontaneous polarization (paragraphs 48, 106 and 129), and electrodes 82a and 82b for applying a voltage to said liquid crystal (paragraph 31),

wherein said liquid crystal shows a monostable state in which an average molecular axis of a director of liquid crystal molecules is aligned in a single direction and present in a first position when no voltage is applied, shows a state in which the average molecular axis is tilted in one direction from the first position at an angle corresponding to a magnitude of a voltage of a first polarity and present in a second position when the voltage of the first polarity is applied, and shows either a state in which the average molecular axis maintains the first position or a state in which the average molecular axis is tilted in a direction opposite to said one direction from the first position and present in a third position when a voltage of a second polarity opposite to the voltage of the first polarity is applied (Abstract).

In addition, re claim 14, the manufacturing method of JP'685 comprises the steps of:

introducing said liquid crystal between said two substrates (paragraph 102);
performing an alignment treatment to bring said liquid crystal into the monostable state by providing a period in which the temperature of said liquid crystal during cooling is kept within a temperature range showing the cholesteric phase, after heating said liquid crystal (paragraphs 39, 99, 100 and 102),

wherein, re claim 15, the alignment treatment is performed after heating said liquid crystal to an isotropic phase (paragraph 102).

JP'685 discloses a liquid crystal display device that is basically the same as that recited in claims 1 and 14 except for a temperature range of either one of a cholesteric phase and a chiral nematic phase of a phase sequence of said liquid crystal has a temperature width of not less than 3 degrees C.

Taniguchi discloses that a temperature range of a cholesteric phase of a phase sequence of a liquid crystal has a temperature width of not less than 3 degrees C (5 degrees C or more) (col. 3, lines 43-48),

wherein, re claim 2, the temperature range of the cholesteric phase of the phase sequence of said liquid crystal has a temperature width of not less than 3 degrees C (5 degrees C or more) (col. 3, lines 43-48);

wherein, re claim 4, the temperature range of the cholesteric phase of the phase sequence of said liquid crystal has a temperature width of not less than 10 degrees C (5 degrees C or more) (col. 3, lines 43-48); and

wherein, re claims 3, 5 and 6, said liquid crystal is a ferroelectric liquid crystal (col. 2, lines 60-63).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of JP'685 with the teaching of Taniguchi by employing a liquid crystal having a sufficient broad temperature range of the cholesteric phase of the phase sequence of said liquid crystal,

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which is 5 degrees or more, to improve orientation or alignment characteristic (col. 3, lines 43-48).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-275685 (JP'685) in view of Taniguchi et al. (Taniguchi, USPN 5,746,939) as applied to claims 1-6, 14 and 15 above and further in view of Yoshinaga et al. (Yoshinaga, USPN 6,791,527 B2).

As shown in Figs. 1 and 5, the liquid crystal display device of JP'685 comprises a data-writing scanning voltage (or voltage of first polarity) and a data-erasure scanning voltage (or voltage of second polarity) applied to the electrodes 82a and 82b (Abstract and paragraphs 58-71).

The liquid crystal display device of JP'685 as modified in view of Taniguchi above includes all that is recited in claim 7 except for a back-light driven by a field-sequential color scheme.

Yoshinaga discloses a liquid crystal display device comprising a back-light driven by a field-sequential color scheme (col. 5, lines 35-49).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal display device of JP'685 with the teaching of Yoshinaga by employing a back-light driven by a field-sequential color scheme to effect color display based on a timewise additive process and improve quality of motion images while suppression power consumption (col. 4, lines 43-45 and col. 5, lines 48-49).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong

04/17/2005


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER